
Policy for the Aesthetic Treatment and Landscaping of Flood Control Projects

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Flood Control District
of Maricopa County



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Policy for the Aesthetic Treatment and Landscaping of Flood Control Projects

December 16, 1992

Introduction

The *Policy for the Aesthetic Treatment and Landscaping of Flood Control Projects* is the result of a continuing effort by the Flood Control District of Maricopa County (District) to improve the appearance of flood control project sites. The original policy was adopted by the Board of Directors in 1979, but increased public concern for preserving the visual beauty and other aesthetic qualities of the urban, rural, and natural settings in Maricopa County prompted the District to revisit and revise the policy. A new policy was drafted in 1992 and was adopted by the Board of Directors on May 3, 1993 (see Appendix A, Resolution 93-03).

While constructing the new policy, the District sought out to include aesthetic and landscaping ideas and techniques used by other governmental entities. The result is a workable document that may be used by the District and its cost-share partners to preserve or enhance the beauty and quality of our natural and man-made environment while developing flood control projects.

The 1979 policy addressed the design of channels, dikes, levees, floodwalls and dams so that they may blend with and create minimum adverse impact on the surrounding environment.

The 1992 policy takes the aesthetic treatment of flood control projects a step further by establishing aesthetics advisory committees to process and review aesthetic considerations in the planning and design stages of each flood control project. The impact of the aesthetic features will be analyzed concurrent with the structural features during the design review process.

There is now an emphasis on receiving input from cost-share partners, local jurisdictions, and local citizens on the aesthetic features to be incorporated into the project design *during* the planning and design phases. Through this policy, the District also encourages the use of native vegetation in landscaping and the use of irrigation systems that promote water conservation.

This policy may be used by the District as a guideline for determining the amount of contribution the District will make toward aesthetics for District-funded and cost-shared projects. Further, this policy may be used as a guideline for consultants to use when designing flood control or regional drainage projects under District contracts.

Policy for the Aesthetic Treatment and Landscaping of Flood Control Projects

1. Purpose

This policy provides general guidance for incorporating aesthetic features as an integral part of the planning, design and construction of flood control projects, and for promoting consideration of aesthetics in the design of new structures, alterations to existing structures, and other projects to be developed by, or funded in whole or in part by the Flood Control District of Maricopa County (District).

2. Application

This policy applies to projects funded entirely by the District or in cooperation with other agencies as approved by the District's Board of Directors. In an advisory capacity, this policy also applies to federally-funded projects sponsored by the District. Each project will be individually evaluated concerning the applicability of the measures set forth in this policy. This policy provides guidelines that may not be applicable to all projects, such as storm drain projects in streets or where the purpose is for a specific use other than landscaping, and therefore, it is understood that there may be exceptions to this policy.

3. Definitions

- 3.1. **"Aesthetics Features"** are natural resources, landforms, vegetation, and man-made structures which generate one or more sensory reactions and evaluations by the observer. These sensory reactions are traditionally categorized as visual, auditory, and olfactory responses. For purposes of this policy, it is recognized that the visual response is the predominant reaction to aesthetic features that this policy will address.
- 3.2. **"Aesthetic Treatment"** includes improvements that enhance or provide aesthetic features to facilities or structures, based on the standards for aesthetics that are generally recognized by the public, technical and institutional sources.

4. General Policy

- 4.1.** The Flood Control District of Maricopa County will consider aesthetic treatment in the design of new structures, alterations to existing structures, and other projects to be developed by, or funded in whole or part by the District. This treatment will be in concert with the authority and limitations specified in A.R.S. §48-3601 et seq., and will be accomplished within the budgetary limitations specified by the District. This policy supercedes "A General Policy for Aesthetic Treatment and Landscaping of Flood Control Structures," dated January 2, 1979. Aesthetic treatment will be limited to aesthetic features that are incidental to, or are part of the flood control structure. The consideration of aesthetic treatment of flood control projects should begin during the project planning stage, prior to design. Each project shall be designed in such a way to protect the visual and cultural values at the project site and surrounding area to the greatest extent practicable. Guidelines detailing the design standards of aesthetic features referred to in this policy may be prepared by the District as needed.
- 4.2.** Aesthetic features of a flood control project shall be designed in consideration of the following:

 - 4.2.1.** Structural integrity and function of the facility are not compromised.
 - 4.2.2.** The safety of the site, the area, and the public is not diminished.
 - 4.2.3.** Maintenance requirements for the facility are not hindered or significantly increased.
 - 4.2.4.** There is no significant (maximum of 6% of the total project) cost increase for required real estate.
 - 4.2.5.** Costs to the District are within acceptable budgetary constraints.
 - 4.2.6.** The aesthetic treatment is compatible with the prevailing features in the surrounding area.
 - 4.2.7.** The aesthetics features developed at the expense of cost-share partners, or other participating entities, will not increase the District's liability regarding personal safety, and/or property.
- 4.3.** Irrigation and water usage requirements will be a primary consideration for all aesthetic treatments.

 - 4.3.1.** An efficient and site-specific irrigation design will provide adequate support for vegetation.
 - 4.3.2.** Irrigation systems will promote the conservation of water in the desert environment of Maricopa County.

- 4.3.3. Native desert vegetation should be self-sustaining after an establishment period of two-to-three years so that the irrigation can be turned off, or greatly reduced after this period of time. Some vegetation may require longer periods of irrigation and some may need to remain on irrigation indefinitely.
- 4.3.4. Irrigation design and specified equipment shall be similar to, and compatible with, other such control systems that are operated by the District.
- 4.3.5. The potential use of reclaimed effluent water should be explored. Even if effluent cannot be utilized initially, the designed system should be adaptable to conversion to effluent at such time as it is available.
- 4.4. Negative impacts to the natural flora and fauna will be minimized or mitigated whenever practicable and the following shall apply:
 - 4.4.1. Existing vegetation will be preserved to the greatest extent practicable, including consideration of plant mortality, and economic feasibility.
 - 4.4.2. Plant materials that are consistent with a Sonoran Desert theme shall be used whenever possible.
 - 4.4.3. In areas where existing vegetation cannot be left in place, the option of transplanting mature vegetation should be carried out to the extent economically practicable.
 - 4.4.4. Exotic vegetation should be used only when necessary to blend the structure into its surrounding community, or in limited areas determined appropriate.
- 4.5. The District will coordinate and cooperate with pertinent jurisdictional agencies.
- 4.6. Aesthetic amenities developed by other agencies for flood control projects that meet the standards of this policy, may constitute District aesthetic improvements. Aesthetic improvements funded by the District may be incorporated with features developed by other agencies.
- 4.7. This policy may also apply to existing District flood control projects that do not include aesthetic features, at the discretion of the Chief Engineer.
- 4.8. Projects in areas where the existing land uses change from rural to urban or suburban prior to construction of the project will be reviewed at that time

to determine the appropriateness of the aesthetic features and may be revised at the discretion of the Chief Engineer.

- 4.9. Multipurpose uses of flood control projects will be encouraged to the extent that other uses do not interfere with the operation of the flood control facility and do not significantly increase the maintenance requirements of the facility. Flood control funds shall not be expended for project elements or items designed to serve exclusively purposes other than flood control, however flood control funds may be expended to modify elements required for flood control purposes if such modification will make the element more suitable for multipurpose uses, e.g., meandering maintenance access roads for hiking and bicycling trail use.
- 4.10. Aesthetic features not relating directly to flood control, which are included in the design and construction of the project at a cost-share partner's request (e.g. recreational facilities), shall be the financial responsibility of the cost-share partner. The District shall not be responsible for the repair of such features in the event of damage caused by flooding, unless specifically included in the cost sharing agreement.

5. Project Review and Recommendation

- 5.1. A Project Aesthetics Advisory Committee shall be formed for each project.
 - 5.1.1. **Function:** An advisory body from the District staff shall be assembled for each project by the project manager to recommend aesthetic features for flood control projects. The committee will use the guidelines provided in Section 7.0. of this policy, and other pertinent District guidelines, for setting the funding for aesthetic improvement for a given project. Review categories include; (a) project budget; (b) project function; (c) public perception and input; (d) natural environment; and (e) man-made and cultural environment.
 - 5.1.2. **Membership:** Committee members shall include: (1) District project manager/planner (Committee Chair); (2) District public involvement coordinator; (3) District ecologist; and (4) project consultant. Committee members shall also include, if available: (5) a representative of the neighborhood; (6) cooperative agency project managers; (7) other District staff; and (8) other agencies, or organizations, including sponsors of other improvements such as recreation uses, at the discretion of the committee chair.
 - 5.1.3. **Responsibilities:** The committee shall review the concept plans to determine the appropriate aesthetic features to be incorporated into the project design. The committee will subsequently review the later design and construction plans to assure that the aesthetics features

have not been substantially altered as the project progresses to completion.

5.1.4. Duration: The committee shall be formed during the project planning phase and shall be dissolved following project construction.

5.1.5. Agreement: If an agreement concerning landscaping and aesthetics cannot be reached during negotiations with the community, the project manager may suspend the negotiations and continue the project design components that are not affected by the landscaping or aesthetics. If the project design cannot be finalized because an agreement cannot be reached, the project manager shall request guidance and direction from senior District management and the project schedule shall be suspended until an agreement is made.

5.2. Project Design Review

5.2.1. Public Participation: Discussion and presentation of conceptual project aesthetic treatment shall be discussed at public meetings held by the project manager/planner prior to the development of the final design plans. Comments received from the public shall be considered by the project manager/planner and the committee for incorporation into the project.

5.2.1.1. Aesthetic features should be incorporated into the project design early in the design process, within budgetary constraints. Aesthetic improvements may also be incorporated as a separate project.

5.2.1.2. Concepts and general plans for structures to be built within another agency's jurisdiction will be reviewed by that agency prior to presenting the plans at a public meeting.

5.2.2. The process to be followed by the committee shall include the following steps:

5.2.2.1. Review the project plans as they relate to the impact area.

5.2.2.2. Establish goals and objectives for the aesthetic treatment and budgetary constraints using the cost-estimation guidelines in Section 7.0. of this document.

5.2.2.3. Prepare a plan containing proposed aesthetic features.

5.2.2.4. Develop an implementation program.

5.2.3. Recommendations: Structural designs will incorporate aesthetic improvements proposed by the project manager following the

recommendation of the Chief Planning and Project Management Division and approval by the Chief Engineer and General Manager.

- 5.3. Aesthetic features should be constructed as a part of and concurrent with project construction, unless seasonal or budgetary constraints warrant a delay in the construction and planting of vegetation.
- 5.4. Flood control structures will be maintained in such a way to preserve the project's aesthetic amenities.
- 5.5. A percentage of each project may be set aside for aesthetic features during budgetary, planning and/or design phases. A financial ceiling, using the cost estimating guidelines in Section 7.0 of this document and other appropriate District guidelines, will be established for expenditures on aesthetic features.
- 5.6. **Maintenance**
 - 5.6.1. Maintenance agreements shall be signed with another agency/entity if the District will not be maintaining the aesthetic features. The maintenance of aesthetics features constructed in a multi-use facility will usually be the responsibility of another agency/entity.
 - 5.6.2. Maintenance of native vegetation by the responsible party will continue until the plants are capable of survival on their own. Exotic and other vegetation shall be maintained in accordance with District standards.

6. General Structural Guidelines

6.1. Channels

- 6.1.1. Channels and maintenance roads will be kept free of weeds, debris and trash.
- 6.1.2. Plantings, walls, fences, or embankments may be used for screening.
- 6.1.3. Landscaping may be used to blend the channel into the surrounding area, in the channel itself and in the right-of-way along the channel.
- 6.1.4. Plantings in the channel must be of a type that will not cause an impedance to the designed function for the project's structural life. Maintenance of vegetation may prevent an impedance from occurring.

- 6.2. **Floodwalls:** Landscaping may be used to screen floodwalls and to break up the linear outline of the structure.

6.3. Dams, Dikes and Levees

- 6.3.1. Dams, dikes, and levees will be designed, where practicable, to meander, as opposed to traditional straight line structures. The height of the structure may vary to help break-up the outline.
- 6.3.2. Borrow areas and other areas disturbed during construction shall be graded to match the surrounding terrain and replanted to resemble surrounding flora.
- 6.3.3. The downstream or land side of the structure may be furrowed to enhance the growth of vegetation, as long as the structural integrity is not diminished.
- 6.3.4. If trees and large plants are used, they will be selected so that their roots will not penetrate into the "root free zone" of the structure.
- 6.3.5. Screening and other techniques may be used to make the site and structure more compatible with the environment.
 - 6.3.5.1. Off-site screening is the placement of plants or earth or rock mounds in key viewpoints so as to maximize the amount of area screened from view.
 - 6.3.5.2. On-site screening may include the use of trees and shrubs to obscure the view of the structure.
 - 6.3.5.3. Veneering or plating of a structure should be done in the same way that rock occurs naturally in the surrounding area.
 - 6.3.5.4. Overbuilding may be used to simulate the natural terrain. Tapered overbuilding may be used on the downstream side of a slope. The final surface grading should resemble the natural undulation of the surrounding terrain surface.

6.4. Basins

- 6.4.1. Landscaping should be used to help the structure blend into the surrounding environment and lessen the visual impact on the natural environment. Plantings may also be used for screening the basin where appropriate.
- 6.4.2. Plantings should be used in a manner to provide erosion control and protect the visual qualities of the area.
- 6.4.3. Basins should be designed to blend into the contour of the natural terrain as much as possible.

7. Cost Estimation Guidelines

- 7.1.** This section shall be used as a guideline for determining funding to be allocated to the aesthetic treatment of flood control projects in accordance with other sections of this policy.
 - 7.1.1.** The Project Aesthetics Advisory Committee Chair may make adjustments to the estimation of project costs as project constraints warrant.
 - 7.1.2.** Cost estimations shall be divided into landscaping and non-landscaping for aesthetic treatment.
- 7.2. Estimating Costs for Landscaping as Aesthetic Treatment**
 - 7.2.1.** Consideration of landscaping as a means of aesthetic treatment must be compatible with the landscaping for other purposes including functional use as erosion protection; use for environmental purposes (such as mitigation); and recreational uses. Landscaping developed to meet these needs may also be used to meet the aesthetic requirements, reducing the amount of landscaping needed on the project site.
 - 7.2.2.** Table 1 may be used as a cost-ceiling guideline for the cost of landscaping based on per-acre costs.
 - 7.2.2.1.** The acreage of the flood control project site shall be determined by the project manager/planner.
 - 7.2.2.2.** The area that is appropriate for landscaping shall be identified according to economic feasibility, constraints (e.g. concrete structures), and visibility. Areas landscaped for other purposes shall be subtracted from the area appropriate for landscaping under this paragraph.
 - 7.2.2.3.** The acreage of the site that is appropriate for landscaping, according to section 7.2.2.2, shall be multiplied times the per-acre costs, according to the appropriate land-use category, in Table 1, page 10. This amount shall be the estimated cost for landscaping of the site, except as otherwise provided for in this section.
 - 7.2.3.** The categories used in determining landscaping expenditures should include: plant materials, irrigation components, seeding, general system costs, and labor.

7.3. Non-Landscaping Aesthetic Treatment

7.3.1. Aesthetic treatment of a project site not included in the landscaping estimates is considered non-landscaping aesthetic treatment. The cost guideline figures included in Table 2 (page 10) will be used to determine the maximum level of funding that can be allocated for non-landscaping aesthetic features.

7.3.2. The percentage figures in Table 2 shall be used to calculate the maximum amount to be funded by the District for non-landscaping aesthetics features on a given project. The funded amount shall be calculated by multiplying the percentage times construction costs of the flood control features.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY:



Neil S. Erwin, P.E.
Chief Engineer and General Manager

Date: 3/15/93

ACCEPTED AND APPROVED:



Chairman, Board of Directors

ATTEST:



Clerk of the Board

Date: 5-13-93

LEGAL REVIEW

Approved as to form and within the powers and authority granted under the laws of the State of Arizona to the Flood Control District of Maricopa County.


General Counsel, District

Date: Mar. 16, 1993

Policy for the Aesthetic Treatment and Landscaping of Flood Control Projects

Table 1
Landscaping Cost-Ceiling per Acre *

Structure Type	Urban	Suburban	Rural
Channel	\$50,000	\$40,000	\$12,000
Basin	\$50,000	\$40,000	\$12,000
Dam	\$20,000	\$20,000	\$12,000

* Includes expenditures for plant materials, irrigation components, seeding, general system costs and labor. General system costs may include labor, materials and equipment required to successfully and economically establish and maintain the plant materials and irrigation system, including: laying out and staking the location of all components, weed control and pre-emergent spraying, provision of soil amendments, soil preparation, tree staking and guy wiring, header installations, gravel or other types of mulches, and installation of landscape berms and boulders. Costs for structures in the other category will be determined on a case by case basis.

Table 2
Project Aesthetic Features: Maximum Cost Guideline **

Project Cost	Urban	Suburban	Rural	Industrial
<\$1,000,000	10%	8%	7%	NA
\$1,000,000 to \$2,500,000	8%	6%	5%	4%
\$2,500,000 to \$10,000,000	6%	5%	4%	3%
>\$10,000,000	5%	4%	3%	2%

** Includes expenditures for enhancing the appearance of structural components of District flood control projects, including: walls, fences, under-crossings, inlet structures, outlet structures, drop structures, energy dissipaters, low flow features, and other components.

Tables 1 & 2 are intended to reflect aesthetic treatment maximum total costs that may be considered appropriate for flood control projects. They are not an allowance. Actual costs should be determined for each project based on the aesthetic treatment that is determined by the District to be appropriate. The District may share in these costs at the cost-share percentage rates established in project IGA's for overall project costs.

Rights-of-Way Cost-Ceiling Guidelines

It is recognized that acquisition of additional rights-of-way may contribute to meeting the goals of the Policy. Project Managers are responsible for demonstrating, on a project by project basis, the amount of right-of-way that is reasonable and appropriate to implement the policy, taking into account the land and resource context of the project, its functional requirements and limitations.

In addition to the costs established in the Cost Ceiling Tables 1 & 2, the costs for rights-of-way acquisition for landscaping and aesthetic purposes within the flood control structure may be increased up to 30% of total rights-of-way costs for the project.

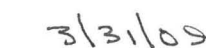
Additional rights-of-way, above the 30% guideline, may be appropriate for purposes of attempting to achieve a reasonable project setback for linear structures. A setback goal of up to 40 feet on each side of linear structures, subject to the limitations of the project and offsite opportunities to provide the setback by other means, is in addition to the O&M access requirements for the project. Recommendations for setbacks that exceed 40 feet require Chief Engineer approval.

The above Cost-Ceiling Guidelines are hereby updated, and may be applied retroactively to all Flood Control District currently under planning and design.

Approved By:



Timothy S. Phillips, P.E.
Chief Engineer and General Manager,
Flood Control District of Maricopa County



Date:

Appendix A: Resolution 93-03

RESOLUTION 93-03

Policy for the Aesthetic Treatment and Landscaping of Flood Control Projects

WHEREAS, the Flood Control District of Maricopa County desires to preserve and enhance the beauty, and other aesthetic qualities of our natural and human environments; and,

WHEREAS, the Flood Control District of Maricopa County (District) desires to improve the quality of the aesthetic treatment and landscaping of flood control structures and incidental properties thereto; and,

WHEREAS, the Flood Control District's current policy entitled, "A General Policy for Aesthetic Treatment and Landscaping of Flood Control Structures," dated January 2, 1979 is outdated and has been rewritten as the "Policy for the Aesthetic Treatment and Landscaping of Flood Control Projects," dated December 16, 1992; and,

WHEREAS, the Flood Control Advisory Board has reviewed this policy and recommends that the Board of Directors approve the "Policy for the Aesthetic Treatment and Landscaping of Flood Control Projects," dated December 16, 1992.

NOW, THEREFORE BE IT RESOLVED, that the Board of Directors of Maricopa County rescinds the former policy entitled, "A General Policy for Aesthetic Treatment and Landscaping of Flood Control Structures," dated January 2, 1979; and adopts the document entitled "Policy for the Aesthetic Treatment and Landscaping of Flood Control Projects," dated December 16, 1992 as an official policy of the Flood Control District of Maricopa County.

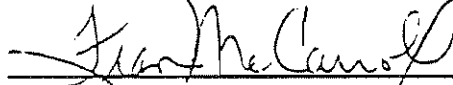
BE IT FURTHER RESOLVED, the Chief Engineer and General Manager of the Flood Control District of Maricopa County is authorized and directed to administer the "Policy for the Aesthetic Treatment and Landscaping of Flood Control Projects," dated December 16, 1992, and to review, and update the Cost-Ceiling charts on tables 1 and 2 in the policy using the construction cost index and other applicable consumer price indices, once every three years, or as determined necessary by the Chief Engineer and General Manager, and to approve the updated figures as part of the policy.

Dated this 3rd day of May, 1993.



Chairman, Board of Directors

ATTEST:



Clerk of the Board